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09/265,070	03/09/1999	YOICHI YAMAGISHI	1232-4519	4078

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EXAMINER	
WU, DOROTHY	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/265,070	Applicant(s) YAMAGISHI ET AL.	
	Examiner Dorothy Wu	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-21,26,31-35,40,45-49,54,59 and 69-71 is/are pending in the application.

4a) Of the above claim(s) 1-16 and 60-68 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 17-21,26,31-35,40,45-49,54,59 and 69-71 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 17, 31, and 45 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 17-21, 26, 31-35, 40, 45-49, and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama et al, U.S. Patent 6,389,179, as disclosed in the Information Disclosure Statement, in view of Okauchi et al, U.S. Patent 5,864,360.

Regarding claim 17, Katayama et al teaches an image processing apparatus (col. 1, lines 7-8) having a function of storing a plurality of sensed still images in a storage means (col. 1, lines 11-12, and col. 9, lines 21-24), comprising: image sensing means (image sensing unit **110**) comprising an image sensing lens **101** which can change an optical system condition (col. 9, lines 53-54, and col. 11, lines 14-17); storage means (image memory **130**) for storing a plurality of images sensed by said image sensing means (image sensing unit **110**) in association with each other (col. 9, lines 21-24, 25-29, and col. 1, lines 11-12); optical system condition change instruction means (in-focus detector **142**) for outputting an instruction for changing the optical system condition of

said image sensing lens (col. 11, lines 54-58, 67-col. 12, lines 1-11), and control means (signal processing unit **190**) for controlling to inhibit the optical system condition of said image sensing lens from changing when the release button is depressed to its first stroke position (col. 12, lines 24-43). Katayama et al further teaches that when the release button is then depressed to its second control position, image data is sensed and stored to memory (col. 12, line 44-col. 13, line 4). Katayama teaches that when the focal length for images remains the same, captured images are contiguous with one another and can be coordinate-transformed using only vertical and horizontal translation amounts (col. 43, lines 52-59). It would have been obvious to lock in the focal length when capturing images for a panoramic image to obtain images that can be synthesized by mere translation. Katayama does not teach the finishing of an associating operation of images after a plurality of images, which have been sensed, are associated with each other upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system change instruction means after a first one of the plurality of images to be stored in said storage means in association with each other is sensed and stored.

Okauchi et al teaches that the focusing point evaluation value is continually monitored such that when an object changes, a hill-climbing focusing operation restarts (col. 15, line 57-col. 18, line 25; col. 23, lines 47-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of setting an in-focus position for panoramic image capture prior to image sensing taught by Katayama et al with the practice of continually monitoring the in-focus state of the subject and restarting the focusing when the object has moved taught by

Okauchi et al to make an apparatus that finishes associating captured images with one another when the image sensing apparatus detects an out-of-focus state and sends a command to change the optical system condition by performing a hill-climbing focusing operation. One of ordinary skill would have been motivated to make such a modification to ensure that all images the in plurality of associated images shall be in focus.

Regarding claim 18, Okauchi teaches that the optical system condition is a focal length of said image sensing lens (col. 15, line 57-col. 18, line 25; col. 23, lines 47-50).

Regarding claim 19, Katayama et al teaches that the association of the plurality of images is obtaining of a panoramic image by synthesizing the plurality of images (col. 1, lines 10-12).

Regarding claim 20, Katayama et al teaches that the plurality of images are images sensed by performing pixel shift, and associating the plurality of images is obtaining a high-resolution image by synthesizing the plurality of images sensed by performing the pixel shift (Figs. 6 and 15; col. 10, lines 34-48; col. 19, line 10-col. 21, line 3).

Regarding claim 21, Katayama in view of Okauchi teach an apparatus that captures images of the same focal length for synthesizing a panoramic image, and that the apparatus restarts a hill-climbing focusing operation when the apparatus detects object movement. See claim 17. It would have been obvious to one of ordinary skill to start sensing a plurality of new images to be stored in association with each other after the associating operation of images is finished. One of ordinary skill would have been motivated to make such a modification to abandon a set of out-of-focus images to capture a set of in-focus images for use in synthesizing a panoramic image.

Regarding claim 26, Katayama et al teaches control means (signal processing unit **190**) for controlling to set the optical system condition of said image sensing lens at an initial value before sensing of a first one of the plurality of images to be stored in said storage means in association with each other is started (col. 11, lines 54-58, 67-col. 12, lines 8, 19-23).

Regarding claim 31, Katayama et al teaches a control method for an image processing apparatus (col. 1, lines 7-8) comprising: image sensing means (image sensing unit **110**) comprising an image sensing lens **101** which can change an optical system condition (col. 9, lines 53-54, and col. 11, lines 14-17); storage means (image memory **130**) for storing a plurality of images sensed by said image sensing means (image sensing unit **110**) in association with each other (col. 9, lines 21-24, 25-29, and col. 1, lines 11-12); optical system condition change instruction means (in-focus detector **142**) for outputting an instruction for changing the optical system condition of said image sensing lens (col. 11, lines 54-58, 67-col. 12, lines 1-11). Katayama teaches that when the focal length for images remains the same, captured images are contiguous with one another and can be coordinate-transformed using only vertical and horizontal translation amounts (col. 43, lines 52-59). It would have been obvious to include a control step for locking in the focal length when capturing images for a panoramic image to obtain images that can be synthesized by mere translation. Katayama does not teach the step of finishing an associating operation of images after a plurality of images, which have been sensed, are associated with each other upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system change instruction

means after a first one of the plurality of images to be stored in said storage means in association with each other is sensed and stored.

Okauchi et al teaches that the focusing point evaluation value is continually monitored such that when an object changes, a hill-climbing focusing operation restarts (col. 15, line 57-col. 18, line 25; col. 23, lines 47-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of setting an in-focus position for panoramic image capture prior to image sensing taught by Katayama et al with the practice of continually monitoring the in-focus state of the subject and restarting the focusing when the object has moved taught by Okauchi et al to make a control method that comprises the steps of finishing an association of captured images with one another when the image sensing apparatus detects an out-of-focus state and sending a command to change the optical system condition by performing a hill-climbing focusing operation. One of ordinary skill would have been motivated to make such a modification to ensure that all images the in plurality of associated images shall be in focus.

Regarding claim 32, Katayama et al teaches that the optical system condition is a focal length of said image sensing lens (col. 11, line 54-col. 12, lines 8, 19-26).

Regarding claim 33, Katayama et al teaches that the association of the plurality of images is obtaining of a panoramic image by synthesizing the plurality of images (col. 1, lines 10-12).

Regarding claim 34, Katayama et al teaches that the plurality of images are images sensed by performing pixel shift, and associating the plurality of images is obtaining a high-resolution image by synthesizing the plurality of images sensed by

performing the pixel shift (Figs. 6 and 15; col. 10, lines 34-48; col. 19, line 10-col. 21, line 3).

Regarding claim 35, Katayama in view of Okauchi teach an apparatus that captures images of the same focal length for synthesizing a panoramic image, and that the apparatus restarts a hill-climbing focusing operation when the apparatus detects object movement. See claim 31. It would have been obvious to one of ordinary skill to start sensing a plurality of new images to be stored in association with each other after the associating operation of images is finished. One of ordinary skill would have been motivated to make such a modification to abandon a set of out-of-focus images to capture a set of in-focus images for use in synthesizing a panoramic image.

Regarding claim 40, Katayama et al teaches control means (signal processing unit **190**) that perform the step of controlling to set the optical system condition of said image sensing lens at an initial value before sensing of a first one of the plurality of images to be stored in said storage means in association with each other is started (col. 11, lines 54-58, 67-col. 12, lines 8, 19-23).

Regarding claim 45, Katayama et al teaches an electronic camera system 100 comprising a computer that operates in accordance with pre-set programs (col. 9, lines 19-21). The storage medium that stores the coded programs for executing control over the camera and its processes is inherently taught. Katayama et al teaches a control method for an image processing apparatus (col. 1, lines 7-8) comprising: image sensing means (image sensing unit **110**) comprising an image sensing lens **101** which can change an optical system condition (col. 9, lines 53-54, and col. 11, lines 14-17); storage means (image memory **130**) for storing a plurality of images sensed by said image sensing

means (image sensing unit **110**) in association with each other (col. 9, lines 21-24, 25-29, and col. 1, lines 11-12); and optical system condition change instruction means (in-focus detector **142**) for outputting an instruction for changing the optical system condition of said image sensing lens (col. 11, lines 54-58, 67-col. 12, lines 1-11). Katayama teaches that when the focal length for images remains the same, captured images are contiguous with one another and can be coordinate-transformed using only vertical and horizontal translation amounts (col. 43, lines 52-59). It would have been obvious to include a control step for locking in the focal length when capturing images for a panoramic image to obtain images that can be synthesized by mere translation. Katayama does not teach the step of finishing an associating operation of images after a plurality of images, which have been sensed, are associated with each other upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system change instruction means after a first one of the plurality of images to be stored in said storage means in association with each other is sensed and stored.

Okauchi et al teaches that the focusing point evaluation value is continually monitored such that when an object changes, a hill-climbing focusing operation restarts (col. 15, line 57-col. 18, line 25; col. 23, lines 47-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of setting an in-focus position for panoramic image capture prior to image sensing taught by Katayama et al with the practice of continually monitoring the in-focus state of the subject and restarting the focusing when the object has moved taught by Okauchi et al to make a control method that comprises the steps of finishing an association of captured images with one another when the image sensing apparatus

detects an out-of-focus state and sending a command to change the optical system condition by performing a hill-climbing focusing operation. One of ordinary skill would have been motivated to make such a modification to ensure that all images the in plurality of associated images shall be in focus.

Regarding claim 46, Katayama et al teaches that the optical system condition is a focal length of said image sensing lens (col. 11, line 54-col. 12, lines 8, 19-26).

Regarding claim 47, Katayama et al teaches that the association of the plurality of images is obtaining of a panoramic image by synthesizing the plurality of images (col. 1, lines 10-12).

Regarding claim 48, Katayama et al teaches that the plurality of images are images sensed by performing pixel shift, and associating the plurality of images is obtaining a high-resolution image by synthesizing the plurality of images sensed by performing the pixel shift (Figs. 6 and 15; col. 10, lines 34-48; col. 19, line 10-col. 21, line 3).

Regarding claim 49, Katayama in view of Okauchi teach a storage medium, wherein the control program comprises the steps of capturing images of the same focal length for synthesizing a panoramic image, and restarting a hill-climbing focusing operation when the apparatus detects object movement. See claim 45. It would have been obvious to one of ordinary skill to start sensing a plurality of new images to be stored in association with each other after the associating operation of images is finished. One of ordinary skill would have been motivated to make such a modification to abandon a set of out-of-focus images to capture a set of in-focus images for use in synthesizing a panoramic image.

Regarding claim 54, Katayama et al teaches a control program comprising the steps of controlling to set the optical system condition of said image sensing lens at an initial value before sensing of a first one of the plurality of images to be stored in said storage means in association with each other is started (col. 11, lines 54-58, 67-col. 12, lines 8, 19-23).

3. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama et al, U.S. Patent 6,389,179, in view of Okauchi et al, U.S. Patent 5,864,360, and further in view of Arai et al, U.S. Patent 5,600,371, disclosed in the Information Disclosure Statement.

Katayama in view of Okauchi teach the apparatus according to the limitations of claim 17. See above. Katayama in view of Okauchi do not teach that the change in the optical system condition is the attachment/detachment of the optical system. Arai et al teaches that when the lens is detached from the camera, the driving means of the lens is stopped, thereby prevented from outputting a signal to change the optical system condition (col. 11, lines 56-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to generate an alert when the image sensing lens has been detached from the lens. One of ordinary skill would have been motivated to make such a modification to cut off power from the system when image sensing can no longer be performed properly to conserve power.

4. Claims 69-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama et al, U.S. Patent 6,389,179, in view of Okauchi et al, U.S. Patent 5,864,360, and further in view of well-known prior art.

Regarding claim 69, Katayama in view of Okauchi teach the apparatus of claim 17. See above. Katayama in view of Okauchi teach that when the scene becomes out of focus, a hill-climbing focusing operation begins again, and a new set of images are taken. See above. Katayama in view of Okauchi do not teach an alerting means for alerting upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system condition change instruction means. The examiner takes Official Notice that it is well-known in the art to let the user know which set of images will be grouped together for a panoramic image. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to alert the user upon reception of the instruction for changing the optical system condition of the image sensing lens. One of ordinary skill would have been motivated to make such a modification to alert the user that previous images will be discarded and the next images to be captured shall constitute the panoramic image.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dorothy Wu whose telephone number is 703-305-8412. The examiner can normally be reached on Monday-Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on 703-308-7644.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703)872-9306.

Dorothy Tlm
DW
October 20, 2003

ANDREW CHRISTENSEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600